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**WALL HANGER ASSEMBLY**

**SPECIFICATION**

**Background of the Invention**

**This is a Continuation-In- Part of co-pending application Serial No. 10/187,169, filed June 28, 2002 which is based on Provisional Application No. 60/348,323 filed January 10, 2002.**

**Field of the Invention**

This invention is directed to a hanger device and in particular to a combination of a clip and its support member by which erosion or deterioration of a wall and its makings to which the device is mounted is eliminated.

**Discussion of the Prior Art**

In the past, prior practice in mounting a picture frame or other article upon a wall with a hook-like member never seriously considered any shearing or downward force that caused an erosion or deterioration of the wallboard out of which the wall was made. The weight imposed by an article, such as a picture, its frame, and wire hanging on an ordinary or customary hook, would cut into or break down the wall and its thickness of the wall board behind it at the same time that a heavy

object would be applied or soon thereafter. There has become a need for a heavy object hanging device that would not breakdown, erode away or deteriorate the wall and its wallboard makings. Prior art teachings on hangers are disclosed in U. S. Patent Nos. D33, 550; D193, 982; D199, 841; D252, 975; D301, 975; D322, 388; 541,114; 2,266,294; 3,091,424; 3,193,225; 3,193,234; 3,219,302; 3,268,195; 3,376,911; 3,392,949; 3,536,287; 3,537,671; 3,966,157; 4,270,719; 4,422,608; 4,482,121; 4,505,447; 4,613,108; 5,160,126; and 6,036,149.

In the installation of prior-art hangers to wallboard, a shearing stress or force occurring in a downward direction would cause an erosion in or deterioration of the wallboard's strength. These disadvantages are eliminated by the present invention thus eradicating the long-time results of hangers falling out of the wallboard because of the weight imposed by an article, such as a picture, its frame, and the wire hanging on an ordinary hook, as the customary hanger itself would cut into or shear downwardly through the wallboard at the same time the article would be applied or soon thereafter. The body formation in this invention for the geometrically configured, non-circular opening in the support member is of the same geometrical configuration as the cross-sectional configuration of the device's extension member so that the device is strongly supported in its originally mounted location on the wallboard. The invention provides the advantage of the hanger device sup-

porting the weight of articles of a weight substantially greater than the weight of articles carried by state-of-the art hangers.

An object of this invention is to provide a novel hanger device. Another object of this invention is to provide the elimination of an erosion and/or deterioration of a wall and its wallboard that occurs with state-of-the art hangers.

Yet another object of this invention is to remove or lessen a shearing impulse on drywall utilized in the formation of a wall by reason of the horizontally oriented extension member.

A further object of this invention is to provide stability in the support member by reason of its fastening to the wall or wallboard.

A still further object of this invention is to insure that the wall is in substantially the same structural condition after removal of the subject matter of this invention as it was prior to installation of the subject matter of this invention.

Yet another object of this invention is to provide a strong hanger device that safely carries an article of substantial weight.

Still another object of this invention is to preclude the hanger from accidentally falling out of the wallboard along with the article carried by the hanger assembly.

These and other objects and advantages of the invention will become more apparent upon a full and complete reading of the following description of the sub-

ject matter of the invention, the appended claims thereto, and the accompanying drawings comprising two (2) sheets of seven (7) figures

### **Brief Description of the Drawings**

Figure 1 is a front view of the hanger device of the present invention as it appears when mounted to a wallboard.

Figure 2 is a view taken along lines 2-2 of figure 1.

Figure 3 is an exploded, generally perspective view of the hanger device in a disassembled condition and prior to its interconnection with a conventional wallboard.

Figure 4 is a cross-sectional view of a portion of a wallboard being penetrated by a puncturing tool preparatory to the interconnection therewith of the hanger device of the present invention.

Figure 5 is a cross-sectional view of the portion of the wallboard in a succeeding stage of preparation of application to that illustrated in figure 4.

Figure 6 is a cross-sectional view of the hanger device of this invention being installed to the wallboard.

Figure 7 is a cross-sectional view illustrating the succeeding step of installation of the hanger device to that illustrated in figure 6.

Figure 8 is a front view of an alternate form of the hanger device of the present invention as it appears when mounted to a wallboard.

Figure 9 is a view taken along lines 9-9 of figure 1.

Figure 10 is an exploded, generally perspective view of the hanger device of figures 8 and 9 in a disassembled condition and prior to its interconnection with a conventional wallboard.

Figure 11 is a cross-sectional view of a portion of a wallboard being penetrated by a puncturing tool preparatory to the interconnection therewith of the hanger device of the present invention.

Figure 12 is a cross-sectional view of the portion of the wallboard in a succeeding stage of preparation of application to that illustrated in figure 11.

Figure 13 is a cross-sectional view of the hanger device of this latest form of the invention being installed to the wallboard.

Figure 14 is a cross-sectional view illustrating the succeeding step of installation of the hanger device to that illustrated in figure 13.

### **Description of the Invention**

Referring to the drawings wherein reference characters therein refer to like numeral hereinafter, figures 1, 2, and 3 illustrate the hanger device 10 of this invention. Device 10 is of a combined pair of elements 12, 13, element 12 being of

an integral body configuration fabricated into the form of a member or clip that includes a hook 14 mounted on a downwardly turned leg 15 extending from a horizontally oriented extension member 16 which at the other end of extension member 16 an elbow 17 integrally connects extension member 16 to an upwardly turned arm 18 formed, adapted to abut and engage the back or interior side 19 of a wallboard 20 to which hanger device 10 is to be mounted, Element 13 is a support member, vertically oriented relative to extension member 16, through which the horizontally oriented extension member 16 projects by means of a geometrically configured opening 21 formed through and in the body formation of support member 13.

The entire length of clip 12 is preferably fabricated into an integral body of the same width and of a rectangular cross-sectional area, with the exception of a pointed end 22 (figures 2, 3, 6, 7) formed at the terminal end of the upwardly turned arm 18. Pointed end 22 facilitates the insertion of element 12 in the installation of device 10 into wallboard 20. The opening 21 is configured to closely mate with the particular geometrical cross section of extension member 16, here being shown as being rectangular in cross section, so that in the combined and assembled modes, the cooperating elements cannot turn about in the opening 21 and about the inner and outer side (walls) 19, 24 respectively, of wallboard 20. A multiple number of fasteners, such as brads 25, are provided for fastening element 13

to wallboard 20 and securing device 10 to wallboard 20. Brads 25 are applied through their corresponding apertures 26, spaced from one another, in support member 13 to attach such member to a thickness 27, (figure 7) of the wallboard 20 via punched holes 28 (figure 5), through thickness 27. In the illustrated embodiment, three (3) spaced apertures 26 are formed in a triangular context in support member 13. It has been found from engineering testing that the illustrated upper two spaced apertures 26 are best formed along a level line 29 (figure 3), in close proximity with the bottom level of opening 21 and with all of the apertures 26 each being located from an edge 30 of support member 13 a distance approximating or equated to the width or diameter of the fastener or brad 25 itself, as is shown in the illustrated embodiment, while the third or lower hole 26 is positioned proximate to the lowest point of edge 30 of support member 13. The integrally formed extension member 16 projects through its mated geometrically configured opening 21 in support member 13, the extension member 16 being of sufficient length to pass through and extend to beyond both the frontal or outer side 24 and interior side 19 of the width of thickness 27 of wall board 20.

In applying device 10 to an actual operation of installation to a wallboard 20, preparatory steps are best considered to be undertaken to obtain a maximum worth of installation. Viewing figures 4-7, a manual insertion and withdrawal of an instrument 33 to form a punched hole 34 throughout wallboard 20, is utilized. A

Phillips screwdriver, an awl or drill bit comprise examples of such a useful instrument 33. Punched hole 34 is of a size suitable for the subsequent insertion of the mated geometrical cross-sectional configuration of extension member 16 and its pointed end 22, the size being large enough so that elbow 17 passes through the instrument-formed hole without unduly weakening the material of wallboard 20 which remains after withdrawal of instrument 33. With support member 13 first being assembled and mounted to extension member 16 of clip 12 via its opening 21, the pointed end 22 of arm 18 enters hole 34 and is advanced (arrow 35 in figure 6) through thickness 27 as hook 14 is pressed (arrow 36) towards and pushed downwardly of the outer side 24 of wallboard 20. Arm 18 in the meantime is completely through wallboard 20 and is being moved in an upward direction and toward the interior side 19 of the wallboard as leg 15 approaches outer side 24. At the same time, hook 14 and support member 13 are pushed or pressed against outer side 24. Arm 18 consequently abuts and engages the interior side 19 of wall board 20, seating against it. Brads 25 are supplied through their corresponding apertures 26 in support member 13 in its assembly to wallboard 20.

Figures 3 and 7 illustrate (arrow 37) the introduction of brads 25 into their respective apertures 26 in support member 13 as the later seats against outer side 24 of wallboard 20, thus securely fastening device 10 to wallboard 20. After completion of installation of device 10, a weighted article 44 is hooked to hook 14.

The invention provides the advantage in device 10 to support the weight of an article 44 having a weight much greater than the weight that can be safely supported by present state-of-the art hanging devices.

Whereas, when present state of the art heavy object wallboard hangers are installed with the maximum prescribed weight (100lbs.) imposed on them, the universal tendency is for the hanger to shear downward through the wallboard thickness (27) thus rendering the hanger ineffective. Conversely, when device 10 is installed and the maximum prescribed weight (200lbs.) is imposed on it, the tendency to shear the wallboard in a downward direction is averted due to the combination of elements 12, 13, and 25.

Heretofore customary and known hangers have fallen out of a wallboard 20 because of the weight imposed by an article, such as a picture, its frame, and wire hanging. In this invention, the body formation (figures 1 and 3) in support member 13 for configured opening 21 mates with the same geometrical cross-sectional configuration of extension member 16, here the example being of rectangular cross section, to support hanger 10 in its originally defined position on wallboard 20, without clip 12 turning about wallboard 20 or element 13.

Various changes and modification may be made without varying or departing from within the spirit and scope of the invention. Elements 12, 13 are preferably fabricated from a suitable metal, their fabrication made by known techniques

and equipment. Other materials, such as plastic and wood, may also be used and be found to be as strong in device 10 so as to carry articles of weights far exceeding an article's weight carried by customary and other state-of-the art handling devices. The arm (18) and leg (15) may be of different configured designs than their illustrations presented in the drawings.

Turning now to figures 8 through 14, an alternate form of the hanger device of the invention is there illustrated and a generally designated by the numeral 50. Device 50 is of similar construction to that illustrated in figures 1 through 7 and like numerals are used in figures 8 through 14 to identify like components. The primary difference between the device of this latest form of the invention and the earlier described device resides in the configuration of the integral body 52. Like the earlier described integral body 12, body 52 includes a hook 54 mounted on one end of a downwardly turned leg 55 which extends from an extension member 56. Formed at the other end of extension member 56 is an elbow 57 which integrally connects extension member 56 to an upwardly turned arm 58. As shown in figure 9, upwardly turned arm 58 is adapted to abut and engage the back or interior side 19 of a wallboard 20 to which hanger device 50 is to be mounted. Element 13, which is identical to that previously described, is a support member that is angularly oriented relative to extension member 56. As indicated in figures 9 and 10, extension member 56 projects through a geometrically configured opening 21

formed in the body formation of support member 13. By referring to figures 9 and 14 it can be observed that both arm 58 and leg 55 extend from extension member 56 at an angle greater than 90 degrees. More specifically, arm 58 extends upwardly from extension 56 at an angle of approximately 94 degrees. This angular orientation of arm 58 relative to extension 56 comprises one of the major differences between the embodiment of the invention shown in figures 8 through 14 and the embodiment of the invention shown in figures 1 through 7. This particular change permits arm 58 to advantageously move into flush engagement with the back surface of the drywall, rather than extending angularly thereto as shown in figure 2 of the drawings.

As before, clip 52 is preferably fabricated into an integral body of the same width and of a rectangular cross-sectional area, with the exception of a pointed end 62 (figures 8 and 10) formed at the terminal end of the upwardly turned arm 58. Pointed end 62 facilitates the insertion of element 52 in the installation of device 50 into wallboard 20. The opening 21 is configured to closely mate with the particular geometrical cross section of extension member 56, here being shown as being rectangular in cross section, so that in the combined and assembled modes, the cooperating elements cannot turn about in the opening 21 and about the inner and outer side (walls) 19, 24 respectively, of wallboard 20. A multiple number of fasteners, such as brads 25, are provided for fastening element 13 to wallboard 20 and

for securing device 50 to wallboard 20. Brads 25 are applied through their corresponding apertures 26, spaced from one another, in support member 13 to attach such member to a thickness 27, (figure 14) of the wallboard 20 via punched holes 28 (figure 12), through thickness 27. In this latest embodiment of the invention, three (3) spaced apertures 26 are formed in a triangular context in support member 13. It has been found from engineering testing that the illustrated upper two spaced apertures 26 are best formed along a level line 29 (figure 10), in close proximity with the bottom level of opening 21 and with all of the apertures 26 each being located from an edge 30 of support member 13 a distance approximating or equated to the width or diameter of the fastener or brad 25 itself, as is shown in the drawings, while the third or lower hole 26 is positioned proximate to the lowest point of edge 30 of support member 13. The integrally formed extension member 56 projects through its mated geometrically configured opening 21 in support member 13, the extension member 56 being of sufficient length to pass through and extend to beyond both the frontal or outer side 24 and interior side 19 of the width of thickness 27 of wall board 20.

In applying device 50 to an actual operation of installation to a wallboard 20, preparatory steps are best considered to be undertaken to obtain a maximum worth of installation. Viewing figures 11 and 12, a manual insertion and withdrawal of an instrument 33 to form a punched hole 34 throughout wallboard 20, is utilized.

A Phillips screwdriver, an awl or drill bit comprise examples of such a useful instrument 33. Punched hole 34 is of a size suitable for the subsequent insertion of the mated geometrical cross-sectional configuration of extension member 56 and its pointed end 62, the size being large enough so that elbow 57 passes through the instrument-formed hole without unduly weakening the material of wallboard 20 which remains after withdrawal of instrument 33. With support member 13 first being assembled and mounted to extension member 56 of clip 52 via its opening 21, the pointed end 62 of arm 58 enters hole 34 and is advanced (arrow 35 in figure 13) through thickness 27 as hook 54 is pressed (arrow 36) towards and pushed downwardly of the outer side 24 of wallboard 20. Arm 58 in the meantime is completely through wallboard 20 and is being moved in an upward direction and toward the interior side 19 of the wallboard as leg 55 approaches outer side 24. At the same time, hook 54 and support member 13 are pushed or pressed against outer side 24. Arm 58 consequently abuts and engages the interior side 19 of wallboard 20, seating flushly against it (figures 9 and 14). Brads 25 are supplied through their corresponding apertures 26 in support member 13 in its assembly to wallboard 20.

Figures 3 and 7 illustrate (arrow 37) the introduction of brads 25 into their respective apertures 26 in support member 13 as the later seats against outer side

24 of wallboard 20, thus securely fastening device 50 to wallboard 20. After completion of installation of device 50, a weighted article 44 is hooked to hook 14.

While elements 13 and 52 are preferably fabricated from a suitable metal, their fabrication made by known techniques and equipment. Other materials, such as plastic and wood, may also be used and be found to be as strong in device 50 so as to carry articles of weights far exceeding an article's weight carried by customary and other state-of-the art hanging devices. The arm (58) and leg (55) may be of different configured designs than their illustrations presented in the drawings.

### **Industrial Applicability**

The invention is applicable to every use, in industrial, commercial, and any other industry, in which an article is to be hung to a wallboard and its wall.

Having now described the invention in detail in accordance with the requirements of the patent statutes, those skilled in this art will have no difficulty in making changes and modifications in the individual parts or their relative assembly in order to meet specific requirements or conditions. Such changes and modifications may be made without departing from the scope and spirit of the invention, as set forth in the following documents.